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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/505,775	02/17/2000	Kenji Oi	1076.1053/JDH	6984

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EXAMINER
LEE, TIMOTHY L

ART UNIT	PAPER NUMBER
2697	5

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/505,775	OI ET AL.	
	Examiner	Art Unit	
	Timothy Lee	2697	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19-22* is/are allowed.

6)☒ Claim(s) *1-4 and 6-17* is/are rejected.

7)☒ Claim(s) *5 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3 and 13-15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 3 and 13 describe transferring a single "write packet" to the "second and third nodes so that the second and third nodes substantially simultaneously store data in the data portion of the write packet." In Claim 3, a single write packet is transmitted to a "plurality of second nodes" simultaneously. It is impossible to have two separate nodes store data into a single "write packet" simultaneously. The packet cannot exist at two separate nodes at the same time.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 4, 6, 7, 9, 10, 12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madonna (US 5,737,320).

5. Claims 1, 2, 4, 6, 7, 10, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Madonna (US 5,737,320).

6. Regarding claims 1 and 2, Madonna discloses a method for transferring a packet with an "empty" payload through a network that has nodes. From Figs. 1C and 1D, it can be seen that there are more than 3 nodes connected to each other by a bus (a first node, a second node, and a third node connected to one another by a bus). In the Empty Send/Full Return (ESFR) method, a node formulates a packet that has a payload that is "empty" but which has sufficient capacity to hold up to 2,048 bytes of data, and the node transmits the packet to the first adjacent node (transferring a write packet from the first node to the second node; data portion is blank). When the packet is received by the second node, the packet handling circuitry inserts data into the payload of the "empty" packet; the packet is then passed to the next node in the network (storing data in the write packet at the second node; transferring the write packet from the second node to the third node). Madonna also discloses a Full Send/Empty Return (FSER) method that transmits a full packet from a first node, and the successive nodes receive data from the payload of the packet that is destined for it. See col. 13, line 65-col. 15, line 7. Madonna does not expressly disclose storing data in a write packet at a second node where the stored data is destined for the third node, but it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the two methods described in Madonna to have the first node send a packet using ESFR, then loading data into that "empty" packet at the second node using FSER, thereby storing data at a second node in a packet that is now destined for the third node. One of ordinary skill in the art at the time of the invention would have been motivated to do this because all control of traffic would originate from the first node, which would be

responsible for controlling when packets will be sent around the network. The first node would have the option of sending an "empty" packet that could be filled by other nodes, or if it has data to send itself, then it can send a "full" packet. Having one node control the packet sending process reduces the complexity and possible collisions that may occur in sending packets around a network.

7. Regarding claims 9 and 12 (where the first node of claim 9 is considered the second node of claim 12, and vice versa), Madonna does not expressly disclose rewriting the data stored in the data portion of the packet received by the first node from the second node when the stored data is addressed to the third node (in claim 12 terminology). It would have been obvious, however, to combine the FSER and ESFR methods to have a packet have its data rewritten at the first node on its way to the third node. One would have been motivated to do this because if the data that rewrites the current data has time-sensitive material, then it makes sense for that data to take precedence and rewrite the current data in the packet so that it gets transmitted sooner.

8. Regarding claims 16, looking at Figs. 1C and 1D, if node 6h is considered the first node, then nodes 6g, 6f, 6a, and so on can be considered second nodes as they are all connected to each other by a bus, and packets can travel from any node to any other node (a first node to transfer packets to a plurality of second nodes. The node inherently contains packet transferring circuitry in order to send and receive packets to and from the other nodes (packet transfer control circuitry). FSER can be used first to send a "full" packet (transferring to the second nodes a write packet, the data portion of which stores data). After FSER has been used, the first node can then send a packet using ESFR, where the second nodes can store data into the "empty"

portion of the packet (and then a further write packet, the data portion of which is blank, wherein each of the second nodes stores data in the blank data portion).

9. Regarding claims 4, 10, 17, a busy indicator in the packet indicates if a packet is "busy" or not. In a packet is not "busy", then it is "free" for the node to use, meaning that data can be written to the packet (writing data to the data portion when the data portion is blank), which also means that at least part of the data portion is blank (the data portion stores identification information indicating whether the data portion is blank). See col. 15, lines 32-49. As can be seen in Fig. 1C, the packet contains three sections, and the control section can be construed as the header of the packet, while the remaining portion can be construed as the data portion.

10. Regarding claim 6, FSER can be used to transfer a "full" packet first (transferring a data packet from the first node to the second node). After the "full" packet has been transferred from the first node to the second, ESFR can be used to transfer an "empty" packet (wherein the write packet transfer step (a) is preformed after the data packet transfer step (d)).

11. Regarding claim 7, nodes must be synchronized and they have certain time slots that they must transfer data in. The nodes have 125 microsecond time periods to write their data into the packet (transferring the write packet from the first node to the second node at predetermined time intervals). See col. 12, lines 23-46.

12. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madonna in view of Ching et al. (US 4,665,514). The rejections for claims 1 and 10 hold in this rejection. Madonna does not expressly disclosed padding the packet if the data does not fill it completely. Ching et al. discloses padding to build a packet to 64 bits of data to make the data packet fixed size. It would have been obvious to a person of ordinary skill in the art at the time of the

invention to pad the packets until they were filled to capacity. One of ordinary skill in the art would have been motivated to do this because sending packets of a fixed length reduces the complexity of having to determine when a variable length packet ends.

Allowable Subject Matter

13. Claims 19-22 are allowed.

14. Claims 5 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Madonna (US 5,864,551), Gray et al. (US 5,970,068), and Takeda et al. (US 6,512,767) disclose methods of transferring empty packets.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy Lee whose telephone number is (703)305-7349. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (703)305-4789. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-9420 for regular communications and (703)746-9420 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

TLL
April 3, 2003

RICKY NGO
PRIMARY EXAMINER